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TWO NEW SUBSPECIES OF THE PIÑON MOUSE,
PEROMYSCUS TRUEI, FROM CALIFORNIA.

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In the course of a study of the variation and distribution of the piñon mice, *Peromyscus truei*, two unnamed races from California have been found. *P. truei* is typically an inhabitant of the Upper Sonoran Life-zone, but one of the races here described is found in a higher and the other in a lower zone. One of the new races is found in the humid coastal area of the Transition Life-zone, where the name piñon mouse is hardly appropriate because no piñon trees occur in this area. Members of this race are the largest of the entire species. Some populations of mice of the other newly named race inhabit the Lower Sonoran Life-zone, and members of this race are among the lightest-colored individuals of the species. The distinctive characters of these mice perhaps have arisen "in response" to the conditions in which the animals live.

Of the specimens examined, the majority are in the Museum of Vertebrate Zoology. The remainder are in the California Academy of Sciences, the Los Angeles Museum of History, Science and Art, and the Vertebrate Collection of the San Bernardino Junior College. I wish to thank the persons in charge of these collections for the opportunity of examining specimens.

The races can be characterized as follows:

***Peromyscus truei sequoiensis*, new subspecies.**

Type.—Male, adult, skin with skull, no. 20842, Mus. Vert. Zool.; one mile west of Guerneville, Sonoma County, California; collected June 16, 1913, by Hilda W. Grinnell, original no. 109.

Range.—The narrow, humid, northwest, coastal belt of California, west

of the crest of the Coast Range, from the Oregon line in Del Norte County south to Marin County.

Diagnosis.—Size: Large (see measurements); tail actually, but not relatively, long (averaging 108 per cent of length of head and body); hind foot long; ear actually and relatively small, averaging (when measured from the notch in the dry skin) only 83 per cent of length of hind foot. Color: Dark; upper parts with considerable blackish and with reddish of a markedly dark tone; underparts of adults usually with an ochraceous or buffy pectoral spot. Skull: Large; rostrum relatively short; palatine slits, relative to the length of the palate, short; auditory bullae large but not greatly inflated.

Comparisons.—From topotypes and most other specimens of *Peromyscus truei gilberti*, *P. t. sequoiensis* differs in the following characters: Size: Larger, except for length of body, which is about the same; length of tail averages 108 per cent of length of head and body instead of 97 per cent; hind foot usually more than 24 millimeters (averaging 25.2 mm.) instead of less than 24 mm. (averaging 22.8 mm.); ear smaller. Color: Upper parts, including dorsal tail stripe, darker; sides more ochraceous. Skull: Averaging larger in every measurement except length of palatine slits; rostrum heavier; breadth across maxillary arms of zygomata greater. From specimens of *Peromyscus truei* from south of San Francisco Bay, *sequoiensis* differs in the following characters: Size: Larger, but tail relatively shorter; hind foot longer; ear slightly shorter. Color: Upper parts more reddish. Skull: Averaging larger in greatest length and basilar length and length of bony palate; palatine slits shorter; auditory bullae larger but less inflated.

Remarks.—*P. t. sequoiensis* intergrades along the eastern border of its range with the race *P. t. gilberti*. For example, specimens from along Clear Creek, Siskiyou County, are typical of *sequoiensis* in all characters except for lighter coloration; specimens from Taylor Creek in the same county are nearer *gilberti* in body proportions, but in other characters agree with *sequoiensis*. Specimens from the South Fork Mountains, Trinity County, are dark colored, but intermediate between *sequoiensis* and *gilberti* in length of tail and in cranial characters. Although specimens occurring in the "islands" of the Transition Life-zone in Lake, Napa, and eastern Sonoma counties approach *sequoiensis* in various features, they all are nearer in the sum total of characters to *gilberti*, to which race they are referred.

Measurements.—Average and extreme measurements, in millimeters, of 14 adults (10 males, 4 females) from the vicinity of the type locality are: Total length, 220 (200–231); length of tail, 114 (104–123); length of hind foot, 25.2 (24–27); ear, measured from the notch, dry, 20.9 (20.2–22.0); greatest length of skull, 29.7 (28.3–30.7); basilar length, 22.2 (20.9–23.1); greatest breadth of braincase, 13.7 (13.0–14.0); interorbital constriction, 4.6 (4.3–5.0); length of nasals, 11.0 (10.3–11.3); shelf of bony palate, 4.5 (4.3–5.0); palatine slits, 6.0 (5.6–6.2); diastema, 7.4 (7.0–7.8); postpalatal length, 10.5 (9.8–11.0); alveolar length of maxillary toothrow, 4.5 (4.2–4.8).

Specimens examined.—Total number, 91, from the following localities, all in California: *Del Norte County*: Wimer Spring, 1800 ft., 7 mi. E. Smith

River, 4; E. Fk. Illinois River, 1900 ft., $\frac{1}{4}$ mi. S. Oregon line, 4; Patricks Creek, 3 (Calif. Acad. Sci.). *Mendocino County*: S. Fk. Eel River, 12 mi. S. Garberville, 2; Laytonville, 2 (Calif. Acad. Sci.); 3 mi. S. Covelo, 11; Sherwood, 4 (3 in Calif. Acad. Sci.); 3 mi. W. Summit Mount Sanhedrin, 1; near Hearst, 1 (Calif. Acad. Sci.); 5 mi. N. W. Yorkville, 1. *Sonoma County*: 7 mi. W. Cazadero, 900–1000 ft., 5; 1 mi. W. Guerneville, 2; Guerneville, 4; 2 mi. S. Guerneville, 200 ft., 1; Monte Rio (Bohemian Grove), 4 (Calif. Acad. Sci.); Freestone, 7. *Marin County*: Nicasio, 2 (Calif. Acad. Sci.); Ross, 1. *Siskiyou County*: 9 mi. W. Happy Camp, 1 (Calif. Acad. Sci.); near Happy Camp, 1 (Calif. Acad. Sci.); Clear Creek, 3 mi. W. Klamath River, 1400 ft., 4; Klamath River, mouth of Clear Creek, 1000 ft., 4; Taylor Creek, 5500 ft., Salmon Mountains, 2 (Los Angeles Mus.). *Trinity County*: 3 mi. N. N. W. Mad River Bridge, South Fork Mountains, 2900 ft., 2; 1 mi. N. W. Mad River Bridge, 2300 ft., 2; 1 mi. N. Reilley's Ranch, 3700 ft., South Fork Mountains, 1; Reilley's Ranch, South Fork Mountains, 3000 ft., 2; Mad River ford, above Ruth, 2700 ft., 13.

***Peromyscus truei chlorus*, new subspecies.**

Type.—Female, young adult, skin with skull, no. 77194, Mus. Vert. Zool.; Lost Horse Mine, southern end of Little San Bernardino Mountains (=69 miles east of Riverside), Riverside County, California; collected March 9, 1929, by Robert D. Moore, original no. 163.

Range.—Interior mountains of southern California, particularly the mountain ranges bordering the western edge of the Mohave and Colorado deserts, including the eastern San Gabriel, San Bernardino, Little San Bernardino, San Jacinto, and Santa Rosa mountains.

Diagnosis.—Size: Medium (see measurements); hind foot short; ear large, as long as the hind foot. Color: Pale, resulting from a reduction of black; dorsal tail stripe light brown. Skull: Small; breadth across maxillary arms of zygomata small; auditory bullae relatively large.

Comparisons.—From specimens of *Peromyscus truei truei* from Clark Mountain and the Providence Mountains, San Bernardino County, *P. t. chlorus* differs in the following characters: Size: Larger; tail longer than body rather than equal to or shorter than body; ears and hind feet slightly shorter. Color: Upper parts paler. Skull: Averaging smaller in nearly all measurements; zygomata weaker and more compressed anteriorly. From specimens of *Peromyscus truei* from the region of Mount Pinos, California, those of *P. t. chlorus* differ in shorter hind feet, conspicuously paler color, and a smaller skull with more compressed auditory bullae, narrower and shorter rostrum, and less breadth across maxillary arms of zygomata.

From specimens of *P. t. martirensis* from the Sierra Juárez and Sierra San Pedro Mártir of Lower California, *P. t. chlorus* differs in the following characters: Size: Averaging smaller; ears larger, usually longer than hind foot rather than shorter. Color: Upper parts paler as a result of the markedly lighter tone of the ochraceous and basal color-bands; dorsal tail stripe lighter. Skull: Rostrum shorter and heavier; nasals narrower posteriorly; auditory bullae larger but less orbicular; external auditory meatus larger.

Remarks.—*P. t. chlorus* is isolated from *truei*, the race to the eastward, by the more barren parts of the Mohave Desert, and thus the two do not intergrade directly. Intergradation may occur to the northwest by way of the San Gabriel Mountains. The specimen from Lytle Creek, in the southeastern end of these mountains, is intermediate in some of its characters between *chlorus* and specimens farther to the northwest, but in the majority of characters is nearest to *chlorus*, the race to which it is here referred. Intergradation between *chlorus* and *martirensis* probably occurs in the area of the Laguna Mountains, San Diego County. Two alcoholic specimens from this area are similar to *martirensis* in body measurements and proportions, but in coloration, in so far as can be determined, they are intermediate. These specimens are referred to the race *martirensis* rather than to *chlorus*, but more material may show the average of the population there to be nearer *chlorus*.

Measurements.—Average and extreme measurements, in millimeters, of 9 adults (6 males, 3 females) from the vicinity of the type locality are: Total length, 202 (184–221); length of tail, 107 (95–116); length of hind foot, 22.4 (21.0–24.0); ear, measured from the notch, dry, 22.6 (20.9–23.9); greatest length of skull, 27.9 (26.8–28.7); basilar length, 20.7 (19.7–21.4); greatest breadth of braincase, 13.0 (12.8–13.2); interorbital constriction, 4.5 (4.2–4.6); length of nasals, 10.4 (9.6–11.0); shelf of bony palate, 4.2 (4.0–4.3); palatine slits, 5.8 (5.4–6.2); diastema, 7.1 (6.5–7.4); postpalatal length, 9.9 (9.4–10.3); alveolar length of maxillary tooththrow, 4.2 (4.1–4.3).

Specimens examined.—Total number, 45, from the following localities, all in California: *San Bernardino County*: Hesperia, 2000 ft., 1 (Vert. Coll., San Bernardino Junior College); Lytle Creek, near Stockton Flats, 5000 ft., 1 (Vert. Coll., San Bernardino Junior College); Big Bear Valley, 6700 ft., 3 (Los Angeles Mus.); Saragossa Spr., 7538 ft., 1; Seven Oaks, 5000–5100 ft., 2; Barton Flats, 6400 ft., 2 (Vert. Coll., San Bernardino Junior College); Santa Ana River, 5500 ft., 1; Fish Creek, 6500 ft., 4; S. Fork Santa Ana River, 6200 ft., 2; Quail Spring, 17 mi. E. Morongo Valley, 4200 ft., 6. *Riverside County*: Joshua Tree National Monument, 1½ mi. N. Lost Horse Well, 4000 ft., 2 (Vert. Coll., San Bernardino Junior College); Lost Horse Mine, S. end Little San Bernardino Mountains, 6; Strawberry Valley, San Jacinto Mountains, 6000 ft., 2; Kenworthy, 4500 ft., 5; Dos Palms Spr., Santa Rosa Mountains, 3500 ft., 1; Santa Rosa Peak, 7500 ft., 6.